The Dependence of the Stability of Some Oxygen Containing Inorganic Compounds on the pH-Value of the Medium

composition rate increases, on a further increase of the concentration to 30 N it decreases, and on another increase of the concentration it increases again. The investigation of the stability of potassium bichromate shows that the decomposition of this oxidizing agent under the action of sulfuric acid takes place according to the following equation:

$$2Cr_2O_7^{2-} + 16\ H^+ = 4\ Cr^{3+} + 3\ O_2^- + 0\ H_2O$$

The decomposition rate of this reaction was investigated in 16,5-, 19,8-, 23,1- and 33,2 N-sulfuric acid solutions. The results obtained show that at room temperature potassium bichromate is relatively resistant to the action of sulfuric acid. The stability of the oxidizing agents at boiling temperatures was investigated. The oxygen containing oxidizing agents with regard to their resistance to sulfuric acid must be classified as follows: KJO_3, $K_2Cr_2O_7$, $KClO_3$, $KBrO_3$, NaClO and $NaClO_2$. Potassium permanganate does not take any fixed

Card 2/3 place among these oxidizing agents.

The Dependence of the Stability of Some Oxygen Containing Inorganic Compounds on the pH-Value of the Medium

Based on the results obtained on the resistance of the oxidizing agents mentioned above to the action of sulfuric acid the qualitative analysis of certain mixtures of these oxidizing agents can be carried out.
There are 9 figures and 22 references, 17 of which are Soviet.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnical Institute)

SUBMITTED: July 8, 1957

AUTHORS: Epik, P.A., Orochko, A.I. 32-24-4-12/67

TITLE: The Determination of Chlorites and Hypochlorites in Their Mixture (Opredeleniye khloritov i gipokhloritov v ikh smesi)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 4, pp. 413-415 (USSR)

ABSTRACT: As determinations with arsenic- and platinum preparations cause certain difficulties, the endeavor was made to find other reducing substances for these investigations. Experiments were made with bivalent cations of cobalt, nickel, and manganese, as well as with hydrogen peroxide, in which mixtures of pure chlorite and hypochlorite were used as 0.1 - 0.2n solutions. Experimental results for cobalt (II) and nickel (II) ions showed that they are unsuited for the required determination. When evaluating the influence exercised by the alkaline medium upon the course of the reduction of hypochlorite by manganese (II) it was found that the interval $8.2 < pH < 10.2$ must be considered an optimum for the reduction of hypochlorite beside chlorite. Hydrogen peroxide was used with an alkalinity of 0.2 - 0.5n lye, which was found to be

Card 1/2

an optimum. As a buffer solution in the case of manganese (II) sodium bicarbonate or Na_2HPO_4 was used, but the latter slowed down filtration. The suggested volumetric methods of determination can also be used for separating chlorite from hypochlorite and for a quality reaction on chlorite beside hypochlorite. There are 2 figures, 2 tables, and 2 references, 2 of which are Soviet.

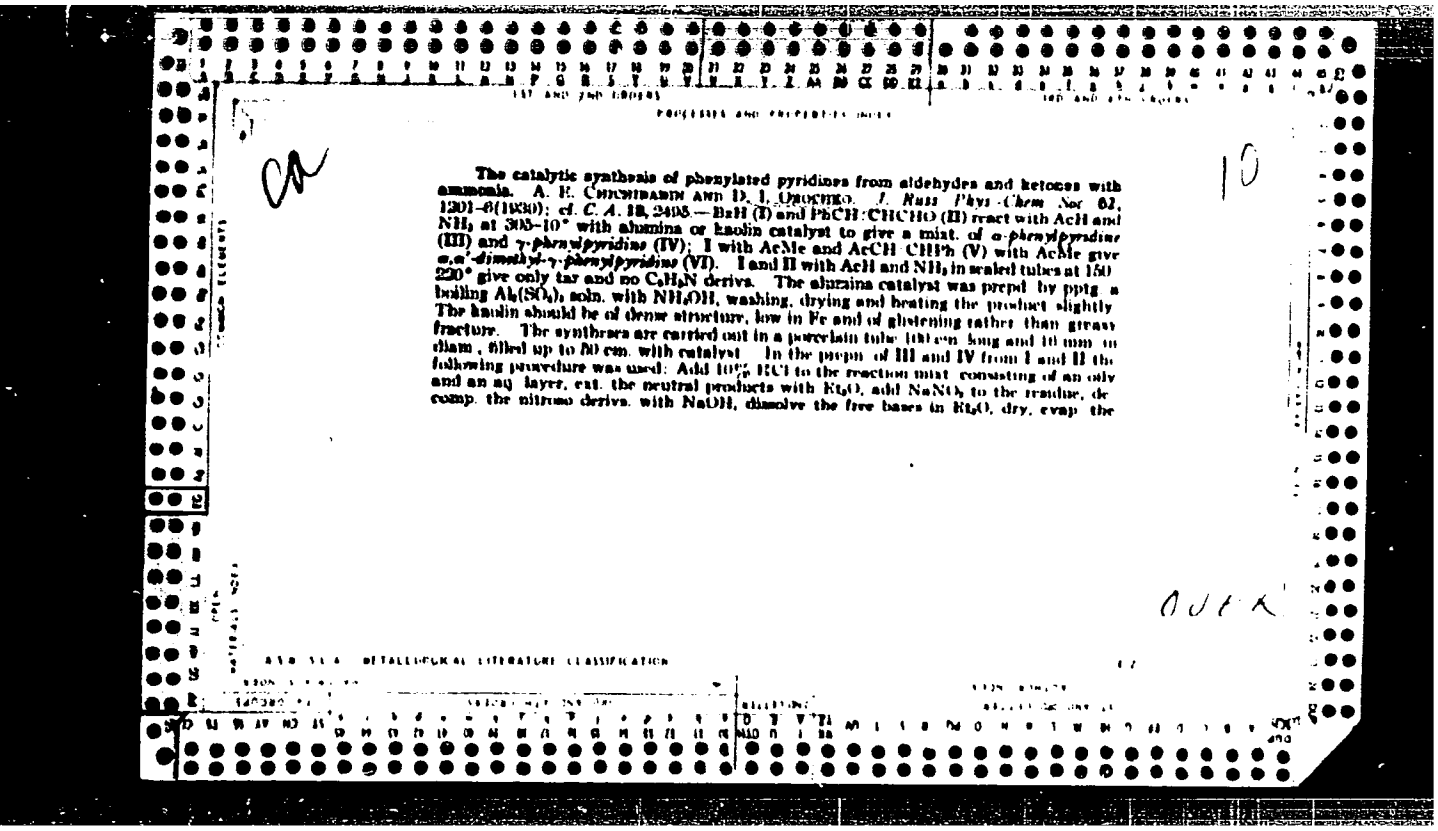
ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnic Institute)

1. Chlorates--Determination 2. Cobalt ions--Chemical effects 3. Nickel ions--Chemical effects 4. Hydrogen peroxide --Chemical effects

OROCHKO, A.I.; EPIK, P.A.

Analysis of mixtures of some halogen compounds. Zav.lab. 29 no.12:1431-1432 '63. (MIRA 17:1)

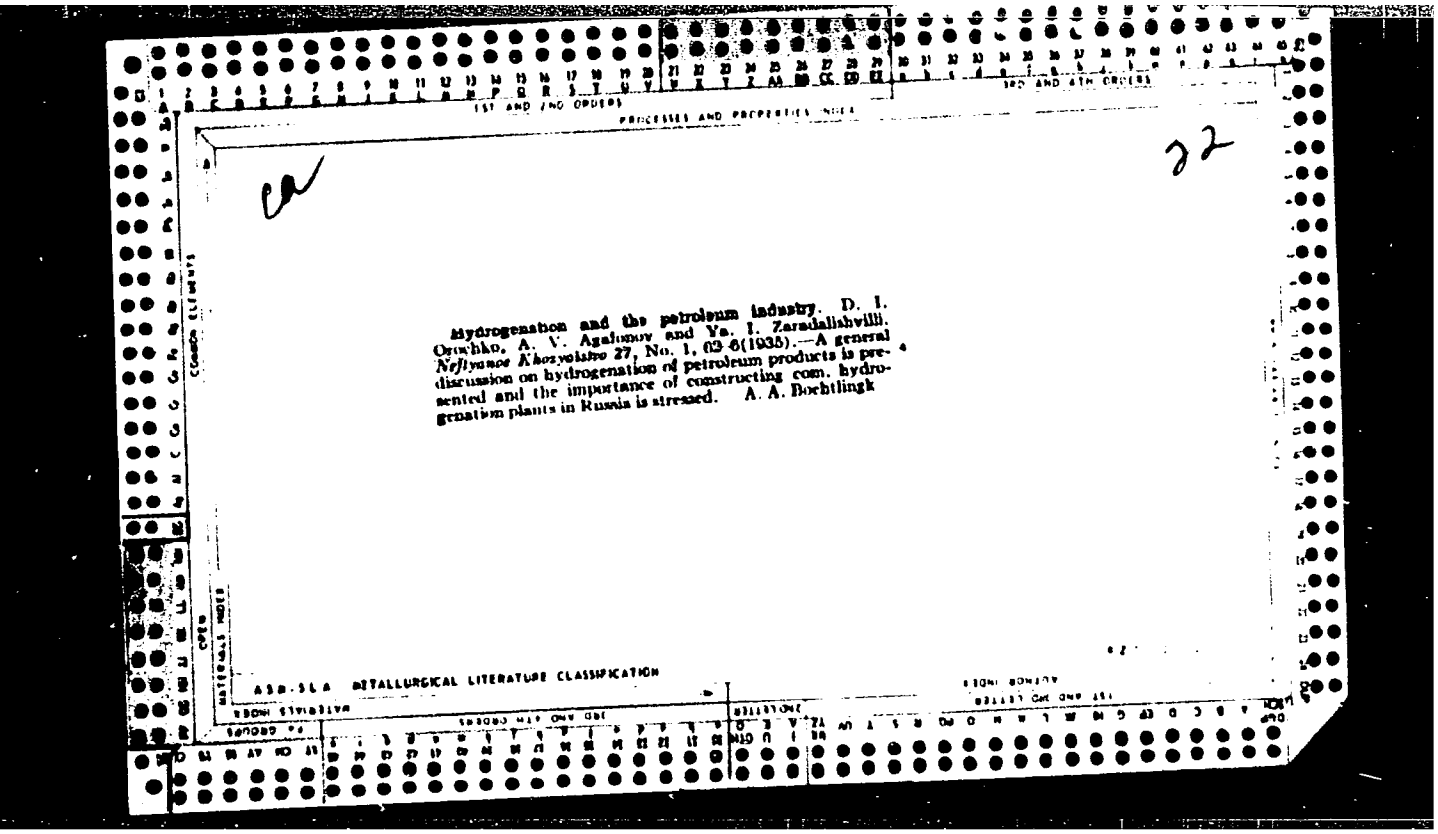
1. Kiyevskiy politekhnicheskiy institut.



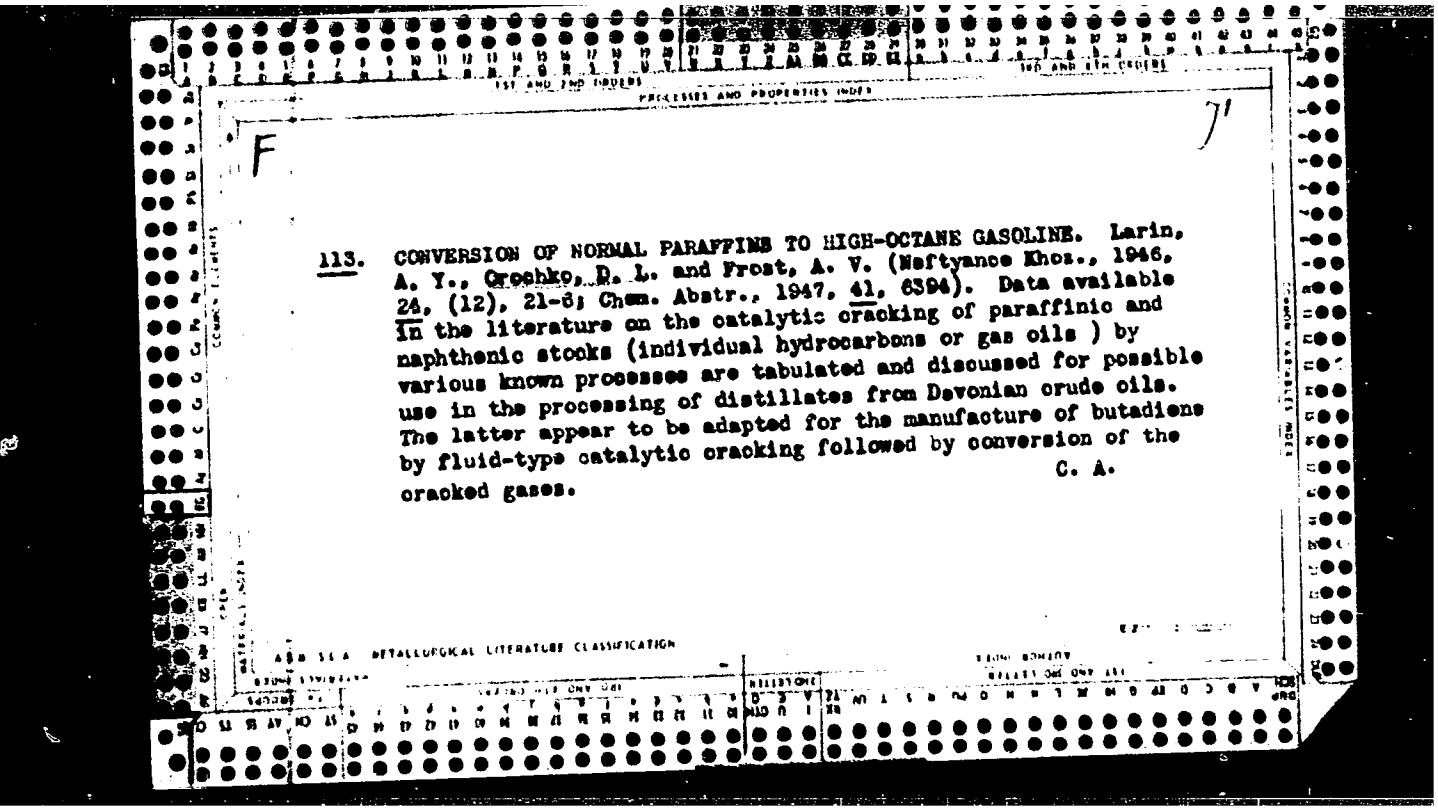
The catalytic synthesis of phenylated pyridines from aldehydes and ketones with ammonia. A. E. Chichibabin and D. L. Ogoshko. *J. Russ. Phys.-Chem. Soc.* 62, 1201–6(1930); cf. *C. A.* 18, 2405.—BzH (I) and PhCH:CHCHO (II) react with AcH and NH_3 at 305–10° with alumina or kaolin catalyst to give a mixt. of *α-phenylpyridine* (III) and *γ-phenylpyridine* (IV); I with AcMe and AcCH:CHPh (V) with AcMe give *α,α'-dimethyl-γ-phenylpyridine* (VI). I and II with AcH and NH_3 in sealed tubes at 150–220° give only tar and no C_5H_5N derivs. The alumina catalyst was prepd. by pptg. a boiling $Al_2(SO_4)_3$ soln. with NH_4OH, washing, drying and heating the product slightly. The kaolin should be of dense structure, low in Fe and of glistening rather than grassy fracture. The syntheses are carried out in a porcelain tube 100 cm. long and 10 mm. in diam., filled up to 80 cm. with catalyst. In the prepn. of III and IV from I and II the following procedure was used: Add 10% HCl to the reaction mixt. consisting of an oily and an aq. layer, ext. the neutral products with Et_2O, add $NaNO_2$ to the residue, decomp. the nitroso derivs. with NaOH, dissolve the free bases in Et_2O, dry, evap. the

Et_2O and fractionated. Fraction A, b. 270-80°, yielded some IV by spontaneous crystn which was recrystd. twice from petr. ether. The combined mother liquors were evapd to remove the solvent and again fractionally distd. The distillate was dissolved in EtOH, from which III and IV were isolated as picrates, and recrystd. from boiling AcMe. Fraction B, b. 285-340°, yielded a small quantity of IV isolated through the picrate. The yield of III from I was 3.5%, from II, 1%; of IV from I, 11%, from II, 10%. The procedure for the prepn. of VI follows: The reaction mixt. was acidified with 15% HCl, the neutral products were extd. with Et_2O, and the residue was cooled for 2 hrs. Separation of crystals and a vacuum oil followed. The crystals are sol. in EtOH and AcMe, insol. in PhH and Et_2O. Upon addn. of AcOEt to the EtOH soln. to slight turbidity the HCl salt of VI was obtained and recrystd. from boiling H_2O. The acid mother liquors were made alk. and extd. with Et_2O. After drying and evapg. the Et_2O, the free base was fractionated. The fraction b. 280-95° was treated with 15% HCl in EtOH, and AcOEt added. Recovery of VI from the combined HCl salts with recrystn. from petr ether gave a product m. 62-63.5°. The yield of VI from I was 13%; from V, 15.5%.

Lewis W. Butz



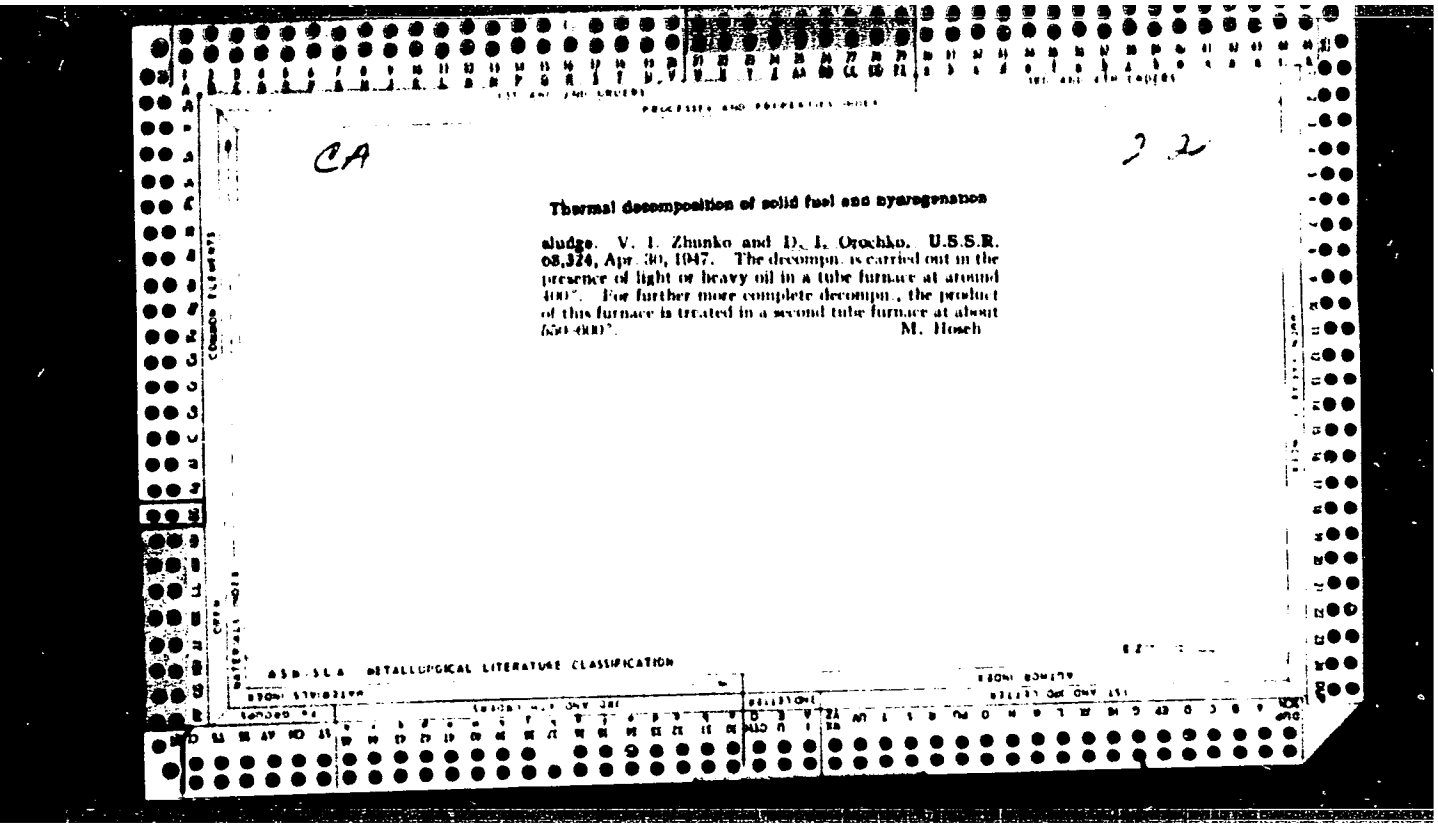
Hydrogenation and the petroleum industry. D. I. Orochko, A. V. Agafonov and Ya. I. Zaradalishvilli. *Neftyanoe Khozyaistvo* 27, No. 1, 69-86(1935).—A general discussion on hydrogenation of petroleum products is presented and the importance of constructing com. hydrogenation plants in Russia is stressed. A. A. Boehtlingk



F

J'

113. CONVERSION OF NORMAL PARAFFINS TO HIGH-OCTANE GASOLINE. Larin, A. Y., Grosshko, D. L. and Frost, A. V. (Neftyanoe Khoz., 1946, 24, (12), 21-6; Chem. Abstr., 1947, 41, 6394). Data available in the literature on the catalytic cracking of paraffinic and naphthenic stocks (individual hydrocarbons or gas oils) by various known processes are tabulated and discussed for possible use in the processing of distillates from Devonian crude oils. The latter appear to be adapted for the manufacture of butadiene by fluid-type catalytic cracking followed by conversion of the cracked gases. C. A.



CA

J 2

Thermal decomposition of solid fuel and hydrogenation sludge. V. I. Zhunko and D. I. Orochko. U.S.S.R. 68,324, Apr. 30, 1947. The decompn. is carried out in the presence of light or heavy oil in a tube furnace at around 400°. For further more complete decompn., the product of this furnace is treated in a second tube furnace at about 450-600°. M. Hosch

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

ORCCHKO, L. I. and ZINOV'YEV, A. F.

"Principles of Contro. of Reaction Equipment for Hydrogenation of [illegible]
Transactions of the All-Union Scientific Research Institute of Synthetic [illegible]
Fuel and Gas, Moscow, Gostoptekhizdat, 1955, volume II.

GROCHKO, B. I.; KARZHEV, V. I.; and KHEYFETS, Ye. M.

"Catalytic Aromatization of Gasolines", Transactions of the All-Union Scientific Research Institute of Synthetic Liquid Fuel and Gas, Moscow, Gostoptekhizdat, 1950, volume II.

GROCHKO, D. I. and VOYTEKHOV, A. A.

"Thermal Effects of Aromatization of Gasolines and Ligroins" Transactions of the All-Union Scientific Research Institute of Synthetic Liquid Fuel and Gas, Moscow, Gostoptekhizdat, 1953, volume II.

OROCHKO, D. I.

"Chemical Kinetics of Common Ia. Catalytic Processes" Trans[illegible]
All-Union Scientific Research Institute of Synthetic Liquid Fuel and Gas,
Moscow, Gostoptekhizdat, [illegible], volume II.

GROCHKO, D. I. and MASINA, M. P.

"Catalytic Aromatization of Synthetic Gasoline and Its Mixtures with Cyclohexane". Transactions of the All-Union Scientific Research Institute of Synthetic Liquid Fuel and Gas, Moscow, Gostoptekhizdat, 1956, volume II.

OROCHKO, D. I.

"Theoretical Fundamentals of the Syntheses of Engine Fuels." Sub 27 Jun 51, Moscow Order of the Labor Red Banner Petroleum Inst imeni Academician I. M. Gubkin.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55.

OROCHKO, D.I.

OBRYADCHIKOV, S.N.; OROCHKO, D.I.; ZINOV'YEVA, A.P.

[Petroleum technology] part 2. Tekhnologiia nefti. Izd.3-e, perer.i dop. Pod red. i s dopolneniiami D.I.Orochkogo. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry. 1952. 408 p.
(MLRA 7:3)

(Petroleum--Refining)

OROCH, D. I.

USSR/Chemistry - Reaction Kinetics

"Concerning the Calculation of Rates of Chemi[illegible] Reactions Taking Place in a Current," D.I.Oroch[illegible]

Zhur Fiz Khim, Vol 27, No 2, pp 285-293

Problems of chemical kinetics become more closely related to chem technology as the level of contemporary technology rises. The principal cond'tions necessary for the soln of kinetic problems are: (a) basing them on unique laws established by expt; (b) selection of the dimensions of principal variables in such a manner that the phys meaning expressed by them is correctly represented; (c) use of eqs suitable for theoretical and practical calcns. USSR work on reactions in currents is discussed in detail from this standpoint.

268T24

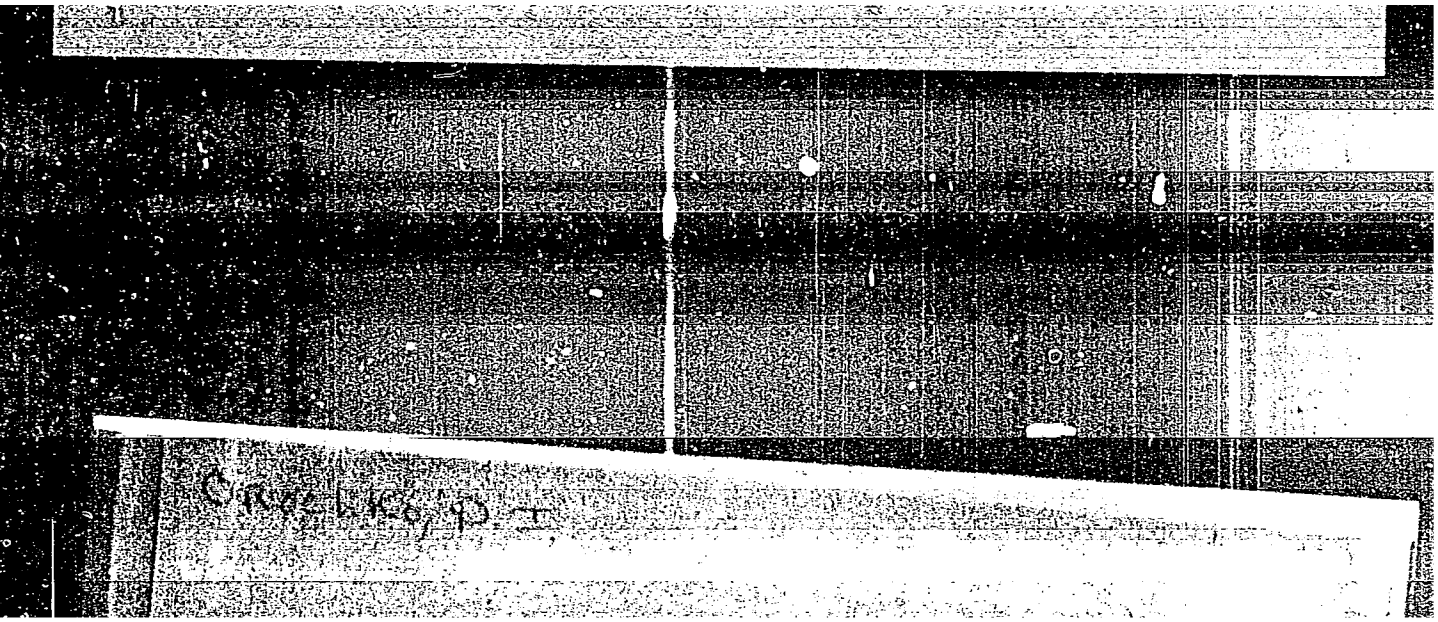
268T24

OROCHKO, D.I.

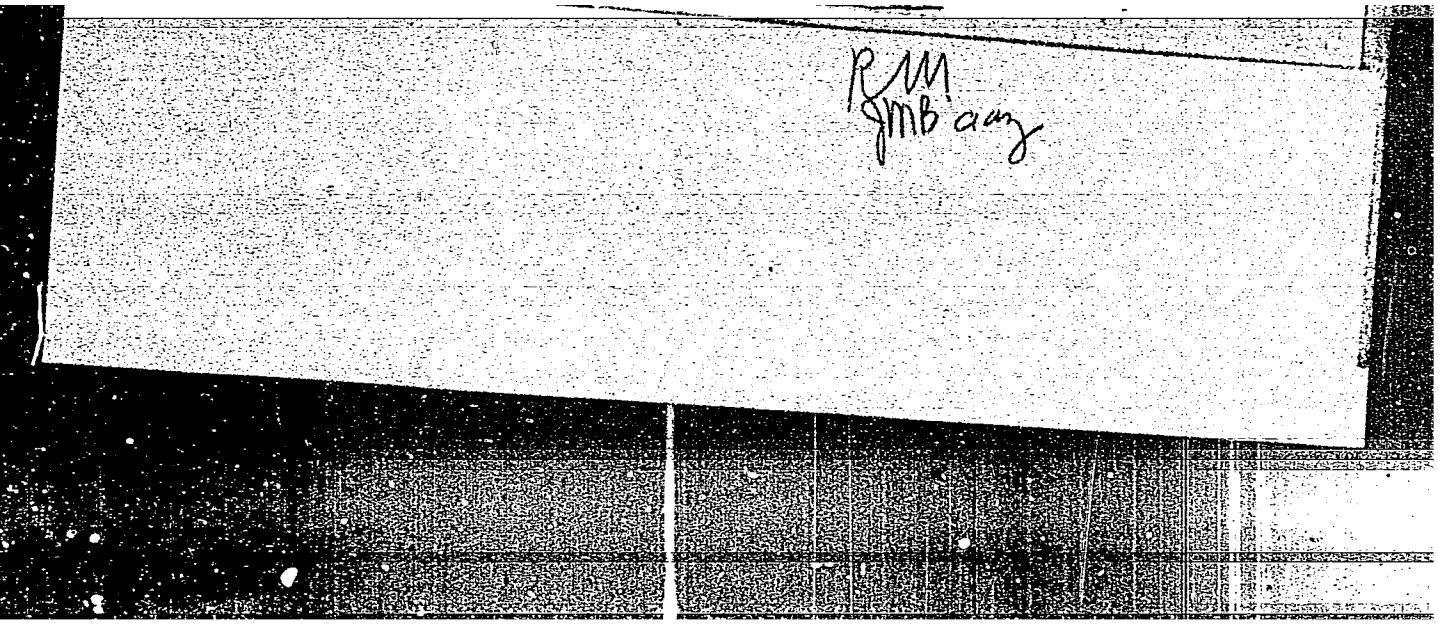
The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Orochko, D. I.	"Theoretical Elements of the Practical Synthesis of Liquid Fuels"	Ministry of the Petroleum Industry

SO: W-30604, 7 July 1954



APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238



OROCHKO, D. I., FROST, A. V., AND SHCHEKIN, V. V.

The Effect of Nitrogen and Oxygen Compounds on the Cracking Process with Aluminum Silicate Catalyst
Trudy VNigi, No 6, 1954, pp 105-113

Selected some typical oxygen- and nitrogen-containing compounds and investigated their effect on the cracking process. The presence of pyridine bases and quinoline sharply reduces the total rate of conversion and gasoline yield, but increases the amount of coke formation. The presence of phenols had little effect on the cracking process except to increase the amount of coke formation on the catalyst. (RZhKhim, No 21, 1954)

SO: Sum. No. 639, 2 Sep 55

SIL'CHENKO, Ye.I.; KARAMEV, V.I.; OROCHKO, D.I.; VAVUL, A.Ya.; KOBO-ZHEVA, Yo.V.; BIRMAN, M.I.; SHAVOLINA, N.V.; MASINA, M.P.; GON-CHAROVA, N.V.

In memory of Mariia Sergeevna Sudzilovskaia. Trudy VNIGI no.6: 146-158 '54. (MLRA 7:11)
(Sudzilovskaia, Mariia Sergeevna, 1904-1953)

OROCHKO, D. I.

RAPOPORT, Iosif Borisovich, professor, doktor khimicheskikh nauk; GOYKHRAKH, I.M., redaktor; YERSHOV, P.R., redaktor; KARZHEV, V.I., doktor tekhnicheskikh nauk, retsenzent; OROCHKO, D.I., doktor tekhnicheskikh nauk, retsenzent; TROFIMOV, A.V., tekhnicheskiy redaktor

[Synthetic liquid fuel; chemistry and technology] Iskusstvennoe zhidkoe toplivo; khimiia i tekhnologiia. 2-e, perer. i dop. izd. Moskva, Gos.nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1955. 546 p. (MLRA 9:3)

(Liquid fuels)

OROCHKO, D.I.

USSR.

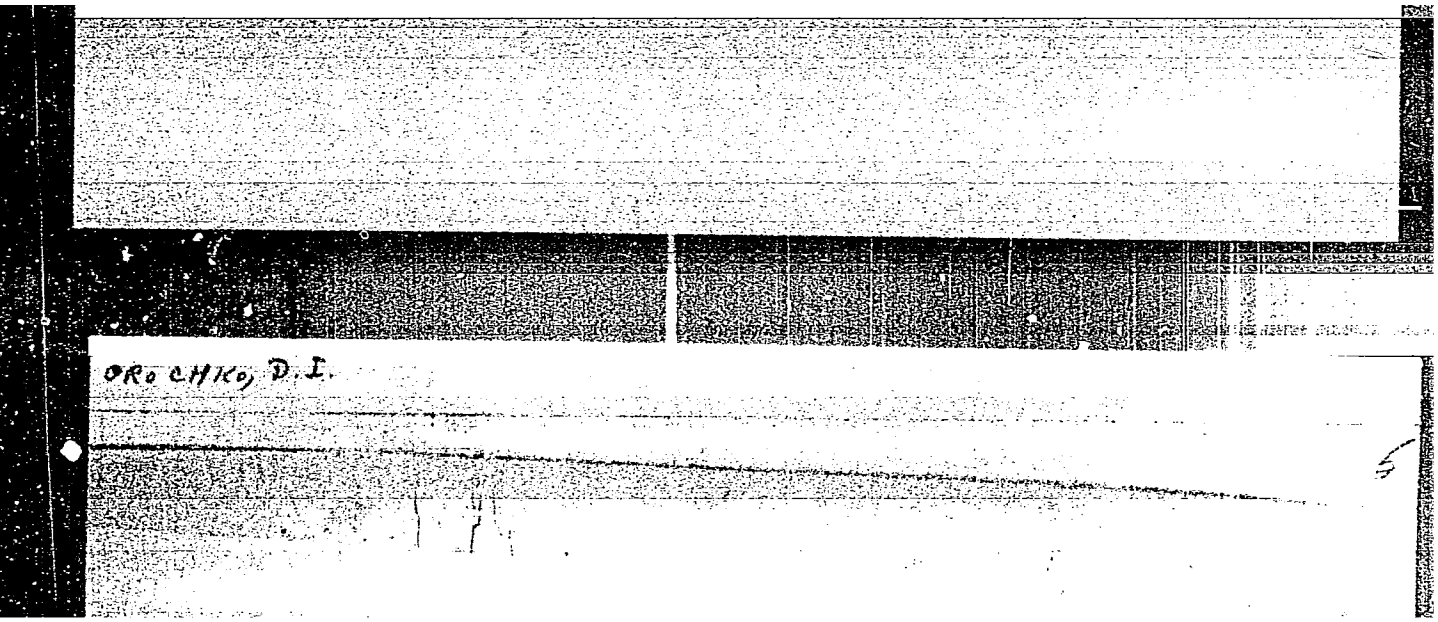
1228. FUEL-AND-CHEMICAL LINE OF DEVELOPMENT FOR PETROLEUM PROCESSING INDUSTRY. Makarov, S.K., Orochko, D.I., Pomolovskii, L.A. and Teregulov, D.Kh. (Neft. Khoz. (Oil Ind., Moscow), Feb. 1955, 67-71). The most profitable line of development for the U.S.S.R. oil industry is seen in the production, in addition to fuels and lubricants, of large quantities of butadiene, ethyl alcohol, fatty acids and detergents. Hydrogenation should help to increase utilization of the crude but the production of hydrogen needs to be made cheaper by the use of new methods of treating refinery wastes. (L).

3
62

OROCHKO, D.I.

Problems of chemical kinetics in industry. Khim.i tekh.topl.no.8: 1-8 Ag '56. (MLRA 9:10)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut Neftyanoy promyshlennosti.
(Chemical engineering) (Chemical reactions)

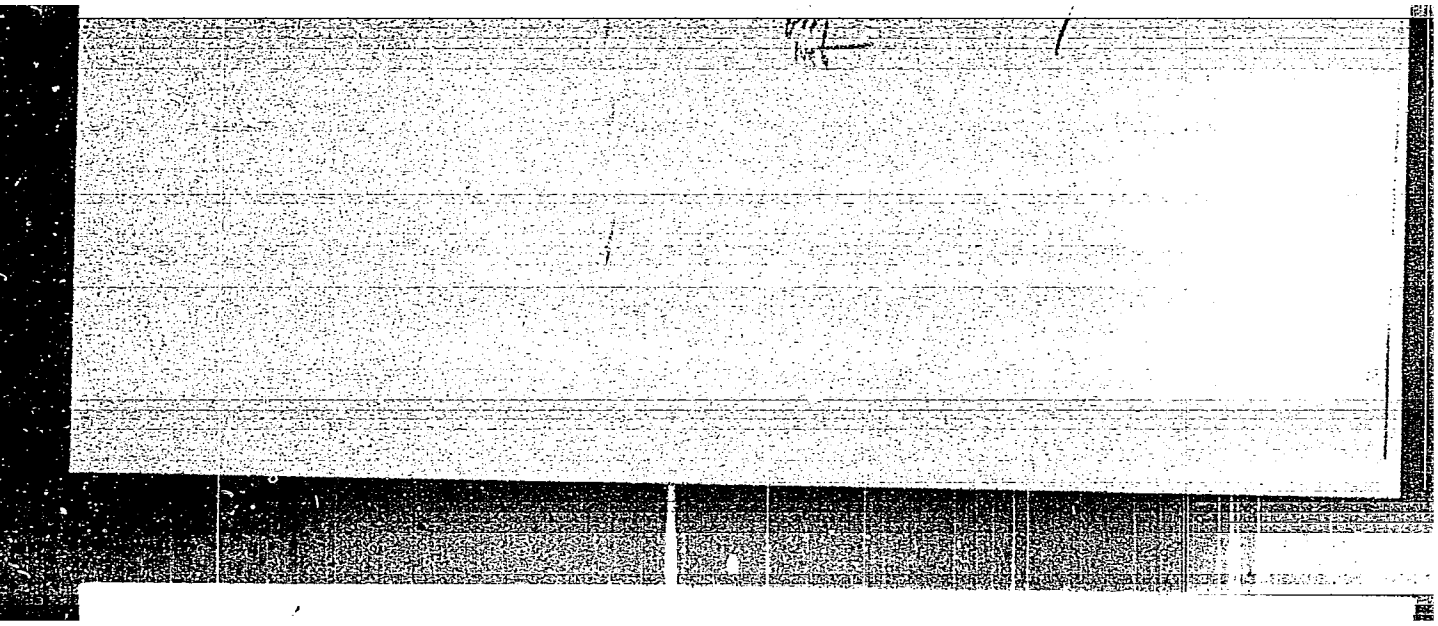


APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

GONCHAROVA, N.V.; VOYTEKHOV, A.A.; KARZHEV, V.I.; OROCHKO, D.I.

Indirect methods for determining relative activity of catalysts. Khim. i tekh. topl. i masel no.3:7-14 Mr '57. (MLRA 10:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotki nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva.
(Catalysts)



APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

On a Step-wise Counter-current Method of Contacting Fine-grain Solid Materials with Gases and Vapours in Heterogeneous Chemical Processes.

2) methylation of pentenes with methyl chloride over fine-grained magnesium oxide; 3) two-stage generation of water gas from powdered petroleum coke, and 4) catalytic cracking of petroleum distillates. Experimental results indicated that under step-wise counter-current conditions, a considerable intensification of the process takes place, in comparison with the intensification obtained with ordinary sectioning of the reaction zone or a single counter-current of reagents. Studies of oxidation-regeneration of active alumino-silicates were carried out by the authors together with N.A. Chernov; experiments in step-wise counter-current regenerators with I.I. Mukhin and V.A. Basov; analytical treatment of experimental data with A.P. Zinov'yeva. In the work on gasification of petroleum coke, the following engineers participated: A.L. Serebrennikova, V.S. Kazina, A.F. Revzin and R.S. Ayzenson, and in the investigation of catalytic cracking of petroleum distillates S.V. Andel'son and N.V. Chepurov. The paper was presented at the All-Union Conference on Processes in a Fluidised Bed, May 29, 1957. There are 6 figures and 27 references, 19 of

Card2/3 which are Slavic.

ASSOCIATION: VNII NP

65-12-1/9

On a Step-wise Counter-current Method of Contacting Fine-grain Solid Materials with Gases and Vapours in Heterogeneous Chemical Processes.

AVAILABLE: Library of Congress

Card 3/3

Orochko, D. I

AUTHORS: Orochko, D.I; Melik-Akhnazarov, T.Kh; and (65-2-4/12
Poluboyarinov, G.N.

TITLE: Stage-Wise Counter-Current Contact Apparatus with Fluidised Bed of Fine-Grained Materials. (Stupenchato-protivotochnyye kontaktnyye apparaty s "kipyashchimi sloyami" melkozernistykh materialov).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958. Nr.2. pp. 22 - 28. (USSR).

ABSTRACT: Applications and designs of stage-wise counter-current fluidised bed contact apparatus, described in Soviet and foreign literature, are reviewed. It is pointed out that multi-plate contacting apparatus with fluidised layers should satisfy the following conditions: they should provide an uninterrupted flow of granular material and of the gas which can be controlled within wide limits; a constant height of the fluidised layer should be maintained on each plate; and the overflow of the fluidised material should be carried out through a secure hydraulic seal, i.e. the gas current should not leak through the overflow of the granular material. The design of the overflow, proposed by one of the authors to VNII NP, which maintains automatically a constant height of the fluidised layer, is described

Card 1/2

65-2-4/12

Stage-Wise Counter-Current Contact Apparatus with Fluidised Bed of Fine-Grained Materials.

(Fig.4). Advantages in the use of step-wise counter-current fluidised layer reactors and the necessity for further improvement of their design and materials of construction are discussed. In order to speed up the development of this type of plant, VNII NP secured the co-operation of two other Institutes, with the following subdivision of research a) GIPRONEFTEMASH - design of parts of the plant and choice of construction materials, with the aim of developing complete plants suitable for various technological processes studied by VNII NP; b) MIKhM - studies of the methods and theories of the dynamics and heat transfer in plants constructed by GIPRONEFTEMASH; c) VNII NP - technological and macrokinetic investigations of various chemical processes in this type of plant and in particular for catalytic cracking, gas generation, generation of hydrogen, etc. VNII NP is co-ordinating the above investigations. There are 5 Figures and 12 References: 8 Russian and 4 English.

ASSOCIATION: VNII NP.

AVAILABLE: Library of Congress.

Card 2/2

OROCHKO, D.I.

PLANOVSKIY, A.N.; OROCHKO, D.I.

Discussion opposing K.P. Lavrovskii, A.M. Brodskii, P.I. Ivanov, A.N. Planovskii, D.I. Orochko against. Khim. i tekh. topl. i masel 3 no.1:69-71 Ja '58. (MIRA 11:2)

(Cracking process)

AUTHORS: Orochko, D.I., Professor, Melik-Akhnazarov, T.Kh., [illegible] Technical Sciences, Zinov'yeva, A.P

TITLE: Reactor Installations for Chemical Processes in the Boiling Layer (Reaktornyye ustroystva dlya khimicheskikh protsessov v kipyashchem sloye)

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1958, Vol III, Nr 6, pp 694-703 (USSR)

ABSTRACT: The method of pseudo-liquifaction of finely ground reagents, catalysts, etc by means of a boiling layer has aroused considerable interest. A diagram of a usual regenerating reactor in catalytic cracking is shown in Figure 1. In many cases the new technological processes caused no changes in the existing equipment (Figures 3-7). In reactors with continuous regeneration of the catalysts the system may be even simplified (Figure 7-7) It is used in the highly exothermic catalytic synthesis of hydrocarbons from CO and H_2. The unwanted circulation within the reactor is eliminated by dividing it into sections. This sectionalization complicates the reactor constructions, but facilitates the realization of many chemical processes in

Card 1/3

industry. The introduction of the highly reactive component into the reaction zone by small portions has the same effect as sectionalization. Another method is the use of a counterflow of the solid material and the steam-gas components. It has been shown that the oxidation regeneration of catalysts under the conditions of a step-wise counterflow is accelerated 10 - 11 times. The catalytic cracking of oil distillates under the same conditions is accelerated 2 - 4 times. The heat transmission from the boiling layer of the powder-like materials to the cooling boiling water reaches 250 - 300 kcal/m^2 per hour and °C. Reactors with parallel sectionalization (Figure 12) have been tested in the reduction processes of ores with low sulfur content. In these reactors the equal removal of the material with low sulfur content from the various sections is most important. Diagrams of the interior installations of one-section reactors with boiling layer used in catalytic cracking are shown in Figures 13 and 14. The device for the removal of excess heat of reaction is very important

Reactor Installations for Chemical Processes in the Boiling Layer

for satisfying operation. The described methods and installations find a large application in atomic and nuclear transformations (Figure 17).
There are 17 diagrams, 1 table, and 26 references, 17 of which are Soviet and 9 English.

Card 3/3

SOV/65-58-12-2/16

AUTHORS: Karzhev, V. I; Kasatkin, D. F. and Orochko, D. I.

TITLE: Hydrogenation of Heavy Petroleum Residues and Secondary Distillates (Gidrogenizatsiya tyazhelykh neftyanykh ostatkov i distillyatov vtorichnogo proiskhozhdeniya)

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr 12, pp 3 - 9, (USSR)

ABSTRACT: Methods for processing petroleum are based on the thermal and catalytic conversions of hydrocarbons. During this process, however, the yield of cracking residues and goudrons as well as distillates with lower hydrogen content, and of inferior quality gases, is increased. This is particularly undesirable during the processing of sulphur-containing petroleums. Disadvantages of destructive hydrogenation processes are pointed out. Comparative rates of liquid phase hydrogenation of various types of raw material at a pressure of 300 atms are given in Table 1. During the hydrogenation of the cracking residue, the reaction volume is decreased to 41 - 66% (in comparison to petroleum residues obtained by direct distillation) and to 57 - 80% when heavy fractions of coke distillates are hydrogenated. Technical and economical aspects of hydrogenation processing can be improved

Card 1/5

Hydrogenation of Heavy Petroleum Residues and Secondary Distillates

by the modification of the liquid phase stage, and by using it in conjunction with other methods such as catalytic and thermal cracking processes. A further reduction of the reaction volume was achieved by using a one-stage liquid phase hydrogenation, and by using suspended and stationary catalysts. The output of the liquid phase hydrogenation plants was increased to 55 - 60%. The hydrogenation of unsaturated hydrocarbons, oxygen- nitrogen- and sulphur-containing compounds and of resinous substances, as well as the destructive hydrogenation with simultaneous cleavage of the molecule, can proceed at low pressures during the destructive hydrogenation process. Strongly aromaticised kerosine-gas-oil and high boiling distillates, with a high sulphur content, are obtained when using the aforementioned processes. Even more highly aromaticised products are obtained by selective extraction of oil and gas-oil fractions. At present, these products are used as additives for petroleum residues used for heating, for diesel fuels etc. which leads to a decreased yield of valuable motor fuels. These products can be converted to motor fuels by lowering their conte

Card 2/5

of aromatic sulphur compounds and unsaturated hydrocarbons. Low boiling and slightly aromatised distillates with an increased sulphur content can be converted comparatively easily to fuels by catalytic hydropurification at pressures varying between 20 - 50 atms. Results of the hydrogenation of characteristic fractions, obtained during the catalytic cracking of heavy distillates, and of extracts obtained during the selective purification of oil fractions over a stationary very active catalyst, are discussed (Table 2). Satisfactory results were obtained with tungsten- or tungsten-nickel sulphide catalysts at 200 - 300 atms pressure and at a temperature of 320 - 400°C. Hydrogenates and their fractions, obtained under these conditions, differ in their chemical composition from the starting material as they contain large quantities of naphthenic hydrocarbon (60 - 70%), small quantities of aromatic compounds (from 6 to 10 - 12%), unsaturated hydrocarbons (1 - 2%) and only about 0.1% sulphur. Fractions boiling up to 300 - 350°C have comparatively high density, low freezing temperature and high calorific value. Fractions boiling above this temperature can be used as starting material for catalytic cracking and for

Hydrogenation of Heavy Petroleum Residues and Secondary Distillates

the preparation of lubricants with a high viscosity index (Table 3). The consumption of hydrogen during the hydrogenation of heavy petroleum residues and of distillates constitutes 3.0 - 4.0%/weight of the starting material. The hydrogenates can be used for diesel and reactive fuels. Properties of the fractions boiling between 200 and 300°C, obtained from hydrogenates during the processing of a highly aromatic extract, are given. Both fractions have the same composition, but different freezing temperatures, which is explained by the different structure of the compositions. Products with analagous properties were also obtained from other aromatic raw materials (extracts of aromatic hydrocarbons obtained during the catalytic cracking of gas-oil; kerosine-gas-oil fractions obtained by direct distillation and fractions obtained during pyrolysis). The qualities of the fractions can be improved by a slight variation in the process conditions; for instance during the hydrogenation of the aforementioned raw materials over a tungsten or tungsten-nickel catalyst

gasolines with low anti-detonating properties are obtained. Their octane number does not exceed 52 - 56 units. This can be increased to 84 by using a specially treated catalyst and increasing the process temperature. During this process, high pressures can be used more effectively when using active stationary catalyst than when using suspended catalyst. The degree of conversion of high boiling fractions into light products reaches 65 - 85% when increasing the rate of supplying the raw material, and is two to three times higher than during the liquid-phase hydrogenation with an iron catalyst. There are 4 Tables and 8 Soviet References.

ASSOCIATION:VNII NP

CARD 5/5

OROCHKO, D.I.; LEVINSON, S.Z.

Layout of equipment for the process of continuous adsorption refining of lubricating oils and other petroleum products. Trudy VNII NP no.7:119-145 '58. (MIRA 12:10)
(Petroleum industry--Equipment and supplies)
(Adsorption) (Petroleum products)

COUNTRY : CZECHOSLOVAKIA
CATEGORY : Chemical Technology. Chemical Products and Their Applications. Chemical Processing of Natural Gases*
ABS. JOUR. : Ref. Zhur., No. 17, 1959, No. 61210
AUTHOR : Barzev, V.I.; Osatkin, N. F.; Grecko, D. I.
INSTITUTE : Not given
TITLE : Hydrogenation of Heavy Petroleum Distillates and Residua from Thermal and Catalytic Cracking
ORIG. PUB. : Chem. Prumysl, 1958, No 11, 571-574

ABSTRACT : Abstract of presentation made at the 1st Fuel Convention in Karlovi Vari (Czechoslovakia) pertaining to the results of an investigation, conducted by the Scientific Research Institute of Petroleum Industry (USSR, Moscow), which indicated that hydrogenation of heavy petroleum distillates and of residua over stationary catalysts beds is the optimum method of their refining.

*and Petroleum, Motor and Rocket Fuels, Lubricants.

Card: 1/1

OROCHKO, D. I., PLANOVSKIY, A. N.

"Principles of Improving Flow reaction Efficiency in Petrochemical Processes."

Report submitted at the Fifth World Petroleum Congress, 30 May - 5 June 1959. New York.

OROCHKO, D. I., ZHERDEVA, L. G., KARASEVA, A. A., VOZNESENSKAYA, E. V., ALTSHULER, A. E., KROL, B. B., AKIMOV, V. S., MIKHAYLOV, B. B., AGAFONOV, A. V., DRUZHININA, A. V.

"Production of Lubricating Oils and Paraffin from Sulfurous Oils in the USSR."

Report submitted at the Fifth World Petroleum Congress, 30 May - 5 June 1959. New York City.

OROCHKO, D.I., prof.; MELIK-AKHNAZAROV, T.Kh., kand.tekhn.nauk;
ZI'NOV'YEVA, A.P.

Reaction vessels for chemical processes in a fluidized bed.
Khim.nauka i prom. 3 no.6:694-703 '58. (MIRA 12:2)
(Fluidization) (Chemical engineering--Equipment and supplies)

SOV/65-59-4-9/14

AUTHORS: Orochko, D.I., Adel'son, S.V., Melik-Akhnazarov, T.Kh., Mukhin, I.I. and Chepurov, N.A.

TITLE: Characteristics of the Multi-Stage Counter-Current Catalytic Cracking of Heavy Distillate Crudes (Ob osobennostyakh stupenchato-protivotochnogo kataliticheskogo krekinga tyazhelogo distillyatnogo syr'ya)

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1959, Nr 4, pp 48-53 (USSR)

ABSTRACT: Investigations of the VNII NP on the speeding up of chemical reactions made it possible to recommend a scheme for multi-stage counter-current processes which use the principle of contacting fine-grained materials with gases and vapours (REF 8). Preliminary experiments, carried out under laboratory conditions, showed that it was possible to intensify the oxidation regeneration of catalysts 9 to 12 times (Ref 8) and cracking processes 2 to 3 times (Ref 5). The lay-out of the pilot plant, used for catalytic cracking, is shown in Fig 1; this pilot plant can process 0.14 to

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0.6 tons of crudes per day. Diesel fuel and vacuum gas-oil, prepared at MNPZ from Romashkinskaya petroleum mixtures and a synthetic aluminium silicate catalyst as well as a microspherical natural clay catalyst were used during these experiments. The activity index of the synthetic catalyst was 30 to 32, that of the clay catalyst 20 and the sizes of the grains 0.20 to 0.50 mm. Results obtained during these experiments were compared with data from catalytic cracking processes of the same crudes on a pilot plant with a monosectional reactor, when the identical catalyst with much finer granulation was used (smaller than 0.2 mm) (Ref 10). The multi-stage counter-current process gave much more satisfactory results (Fig 2 and table 1). When using this method coke formation was reduced. This proved that the multi-stage counter-current catalytic cracking process is highly selective. When using this process in conjunction with a clay-catalyst (activity equals 20), for heavy crudes (table 2), the rate of the reaction is intensified 3 to 4 times. Gasoline obtained from heavy

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crudes, when using a synthetic catalyst, contains a larger amount of unsaturated compounds than the product from fluidized bed cracking processes. The octane number of the gasolines equals 80 and can even reach 100. The light gas-oils from the multi-stage counter-current catalytic cracking process have cetane numbers between 30 and 31, whereas the gas-oils prepared by monosectional cracking have cetane numbers of 18 to 26. The quality of the gasoline can be improved by catalytic purification over an aluminium silicate catalyst (Ref 10). The yield of light products in the one-stage catalytic cracking process of heavy distillates does not exceed 60 to 62%. This yield can be improved by using a selective 2-stage cracking process (up to 70%). The basic characteristics of the multi-stage counter-current process of the VNII NP were compared with those of a plant by GrozNII Giprogrozneft and those of the GrozNII regenerator system (Ref 4 and 6). Advantages of the multi-stage counter-

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current process are discussed and it is stressed that high octane gasoline and gaseous olefins can be prepared simultaneously. The experimental work was carried out by G.S.Shnayder, V.A.Basov, L.A.Rudnitskiy, N.P.Yepifanova, Ye.V.Leont'yeva and several investigators of the VNII NP. There are 3 figures, 2 tables and 13 Soviet references.

PRESENTED: 1st December 1958, by S.V.Adel'son at the Conference of the GNTK USSR, GNTK RSFSR, Scientific Technical Department NGP.

SOV/65-59-4-10/14

AUTHORS: Orochko, D.I., Basov, V.A. and Melik-Akhnazarov, T.Kh.

TITLE: Method of Hydro-Dynamic Calculation of Multi-Stage Counter-Current Contact Plants of the VNII NP (K metodike gidrodinamicheskogo rascheta stupenchato-protivotochnykh kontaktnykh apparatov VNII NP)

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1959, Nr 4, pp 54-59 (USSR)

ABSTRACT: Investigations of VNII NP have shown the suitability of the multi-stage counter-current method of contacting gases or vapours with fine-grained solids which makes it possible to speed up the rate of many fluidised-bed processes (Ref 1). The design of the plant and working method were described in an earlier publication (Ref 4). The authors now give calculations for defining the basic mechanism of the process. The experiments were carried out in a glass apparatus which comprised two fluidised-beds of fine-grained material (Fig 1). A granulated aluminium silicate catalyst was used which contained up to 80% of 0.2 to 0.5 mm fractions and 18% of $<$ 0.2 mm fraction (viz table). Variations in the coefficient of

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Method of Hydro-Dynamic Calculation of Multi-Stage Counter-Current Contact Plants of the VNII NP

resistance of the grid at various ratios of the diameter of the aperture and of its thickness is shown in the form of a graph (Fig 2). The length of the tube affects the efficiency of the process and, therefore, experiments were carried out with 100, 150, 175, 200 and 250 mm length tubes which had a diameter of 1.5 d_p. Results of these experiments are given in Fig 4. This nomogram correlates the basic variable factors which affect the operation of the multi-stage counter-current apparatus; the linear velocity of the air current in the free sector of the apparatus; the resistance of the gas separating grids at various degrees of perforation etc. Experimental work was carried out by Yu.K.Vayl' P.A.[illegible]gov and other members of the VNII NP. There are 4 figures, 1 table and 5 references, 4 of which are Soviet and 1 English.

S/081/63/000/004/005/051
B102/B186

AUTHORS: Shavolina, N. V., Orochko, D. I., Sil'chenko, Ye. I.

TITLE: Some problems of macroscopic kinetics of hydrogenation of aromatic hydrocarbons in flowing operation

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1963, 78-79, abstract 4B515 (Tr. Vses. n.-i. in-t po pererabotke nefti i gaza i polucheniyu iskusstv. zhidk. topliva, no. 8, 1959, 4-19)

TEXT: In the case of small reaction rates toluene hydrogenation may be formally described by the equation of pseudomonomolecular inhibiting reactions. With high rates the hydrodynamic conditions of the experiment have an effect on the depth of transformation of the crude. A reduction in grain size of the industrial W-Ni catalyst (Cat) on the carrier causes an increase in the macroscopic rate of C_6H_6 hydrogenation, which indicates the inhibiting effect of the diffusion of reagents in the Cat pores. Inhibition is particularly intense in the first stages of hydrogenation, when the surface reaction rate is high. The mean effectiveness of the internal surface of industrial Cat (tablets 10 mm in diam, 10 mm in height)

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Some problems of macroscopic ...

amounts to ~50-60% when hydrogenating a crude containing ~70% C_6H_6. The effectiveness of the internal surface of the Cat may be increased by reducing the Cat grain size and by reducing the C_6H_6 concentration in the crude; it is decreased when the amount of circulating H_2 is increased.

[Abstracter's note: Complete translation.]

Card 2/2

OROCHKO, D.I., ZINOV'YEVA, A.P.

Principles for the control of the operation of reactors used in large scale catalytic processes. Kin. i kat. 1 no.1:162-169 My-Je '60. (MIRA 13:8)

1. Laboratoriya khimicheskikh reaktorov Vsesoyuznogo nauchno-issledovatel'skogo instituta po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.
(Catalysis)

OROCHKO, D.I.; ZINOV'YEVA, A.P.

Developing a theory of chemical reactors. Khim.i tekh.topl.i masel 5 no.4:49-53 Ap '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva.
(Chemical apparatus)

ZINOV'YEVA, A.P.; OROCHKO, D.I.

Macrokinetics of heterogeneous processes over moving-bed catalysts. Azerb. khim. zhur. no.2:61-66 '63. (MIRA 16:8)

OROCHKO, D.I.; SHAULOV, Yu.Kh.

In memory of Andrei Vladimirovich Frost. Zhur.fiz.khim. 37 no.1:250-251 Ja '63. (MIRA 17:3)

BULIMOV, Andrey Dmitriyevich; OROCHKO, D.I., doktor tekhn. nauk, prof., red.; YENISHERLOVA, O.M., ved. red.

[Catalytic reforming f gasolines] Kataliticheskii riforming benzinov. Moskva, Izd-vo "Khimiia," 1964. 205 p. (MIRA 17:7)

ZINOV'YEVA, A.F., [illegible]

Macrokinetics of heterogeneous processes over moving catalysts.
Trudy VNII NP no. [illegible] 263-273 '63. (MIRA 17:6)

BASOV, V.A.; MELIK-AKHNAZAROV, T.Kh.; OROCHKO, D.I.

Intensification of the oxidizing regeneration of aluminosilicate catalysts in a fluidized bed. Khim. prom. no. 4:282-289 Ap '64. (MIRA 17:7)

BASOV, V.A.; GLAGOLEVA, O.F.; LIVSHITS, R.S.; MELIK-AKHNAZAROV, T.Kh.; OROCHKO, N.I.

Chemical and technological macrokinetics of the cracking of petroleum distillates over powdered catalysts. Azerb. khim. zhur. no.5:55-64 '64. (MIRA 18:3)

IVANYUKOV, D.V.; OROCHKO, D.I.

Catalytic processes in petroleum refining. Khim. i tekh. topl i masel 9 no.8:70-72 Ag '64. (MIRA 17:10

OROCHKO, D.I.

Role and study methods of the theory of chemical technology as a scientific basis for the development of industrial chemistry. Khim. i tekh. topl. i masel 10 no.3:34-37 Mr '65. (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.

MALIK-AKHNAZAROV, T.Kh.; LIVSHITS, R.S.; OROCHKO, D.I.; SHNAYDER, G.S.

Effect of the sectionalization of the zone of reaction on the distribution and quality of end products in the catalytic cracking in a fluidized bed. Khim. i tekh. topl. i masel 10 no.12:32-35 D '65. (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.

BEREZANSKIY, Yu.M. (Kiyev); OROCHKO, Yu.B. (Kiyev)

Remarks concerning the growth of eigenfunctions of self-adjoint operators. Ukr.mat.zhur. 14 no.2:180-184 '62. (MIRA 15:11)
(Eigenfunctions) (Operators (Mathematics))

OROCHKO, Yu.B.

Behavior at infinity of the eigenfunctions of a Schrödinger operator. Dokl. AN SSSR 163 no.5:1073-1076 Ag '65. (MIRA 18:8)

1. Institut matematiki AN UkrSSR. Submitted March 27, 1965.

(ROCHULSKI, Janusz, mgr inz.

Anniversary address. Gosp wodna 23 no. 8/9:291 Ag-S '63.

1. President, Central Administration of Water Management, Warsaw.

HUNGARY

SAS, Mihaly, Dr, RAPCSAK, Vilmos, Dr, OROJAN, Ivan, Dr; Medical University of Szeged, Gynecological Clinic (director: SZONTAGH, Ferenc, Dr) (Szegedi Orvostudomanyi Egyetem, Noi Klinika).

"The Effect of Gestagen (Lynestrenol) Treatment on the Testes."

Budapest, Orvosi Hetilap, Vol 107, No 17, 24 Apr 66, pages 779-781.

Abstract: [Authors' Hungarian summary] Administration of 5 mg of Lynestrenol daily to mature male rats will suppress the mating instinct for a prolonged period of time, the size of the gonads decreases considerably in response to the treatment and spermiogenesis in them ceases. Regeneration starts 5-6 weeks after interruption of the treatment but the condition before treatment is not reached again as much as 12 weeks later: regeneration is greatly delayed. All 9 references are Western.

1/1

TEVAN, Zsofia, okleveles epiteszmernok, OROSZ, Arpad, dr., okleveles mernok, docens, a muszaki tudomanyok kandidatusa

Laboratory tests on high-strength prefabricated highway bridge beams reinforced with slack concrete. Melyepitestud szemle 15 no.3:112-122 Mr '65.

1. Chair of Building Materials of the Technical University of Building and Transportation, and Architectural Working Group of the Hungarian Academy of Sciences, Budapest (for Tevan). 2. Chair of Reinforced Concrete Constructions of the Technical University of Building and Transportation, Budapest (for Orosz).

SZABOLCS, M.; OROSZ, L.; HANKISS, J.

Physico-chemical and immunological properties of [illegible] pathological macroglobulin. Acta physiol. acad. sci. Hung. 26 no.3:217-226 '65

1. Central Research Laboratory and First Department of Medicine University Medical School, Debrecen.

OROGORNIKOV, S.K.; RABOVSKAYA, R.V.; KOROL', N.G.; PRESMAN, B.I.

Azeotropy in binary systems formed by perfluorotriethylamine and C_5 and C_6 hydrocarbons. Zhur.prikl.khim. 37 no.7:1597-1601 Jl '64. (MIRA 18:4)

KOVACS, Lasalo, dr.; OROJAN, Ivan, dr.; SZEKEDAY, Zoltan, dr.; SZONTAGH, Ferenc, dr.

Obstetric anesthesia with a nitrogenoxidul-oxygen mixture using the "Analgomat" apparatus. Orv. hetil. 106 no.25:1173-1176 20 Je '65.

1. Szegedi Orvostudomanyi Egyetem, Szuleszeti es Nogyogyaszati Klinika (igazgato: Szontagh, Ferenc, dr.).

OROKHOVSKIY, I., inzhener.

New cage landing chair. Mast.ugl.6 no.1:16 Ja '57. (MLRA 10:4)

(Mine hoisting)

OROKHOVSKIY, I.I.

Automatic landers with drive from the cage. Ugol' Ukr. 3 no.1:33-34 Ja '59. (MIRA 12:1)

1. Dongiprouglemash.
(Mine hoisting) (Automatic control)

BAKHMUTSKIY, F.I., inzh.; OROKHOVSKIY, I.I.; KHARLAMOV, V.V., inzh.; ROZENFEL'D, V.Ye., doktor tekhn.nauk; STAROSKOL'SKIY, N.A., kand.tekhn.nauk, dots.

Mine haulage by means of high-frequency electric locomotives. Ugol' 35 no.6:29-33 Je '60. (MIRA 13:7)

1. Dongiprouglemash (Bakhmutskiy, Orokhovskiy, Kharlamov). 2. Moskovskiy energeticheskiy institut (for Rozenfel'd, Staroskol'skiy).
(Mine railroads)
(Electric locomotives)

PALANT, Grigoriy Yakovlevich; OROKHOVSKIY, Iosif Iosifovich; GUDALOV, V.P., otv.red.; ABARBARCHUK, F.I., red.izd-va; MINSKER, L.I., tekhn.red.

[Mechanization of the cleaning of mine railroad cars] Mekhanizatsiia chistki shakhtnykh vagonetok. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 77 p.

(MIRA 14:4)

(Mine railroads--Cars) (Cleaning machinery and appliances)

OROKOV, S.D.

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Vol. 37 No. 3
March 1954
Cements, Limes, and Plasters

Technology of Binding Materials (Tekhnologiya vyazhushchikh veshchestv). V. N. Yung, Yu. M. Butt, V. F. Zhuravlev, and S. D. Orokov. State Publishing House of Structural Materials, Moscow, 1952, 600 pp., illus. Price R15.50. Reviewed in *Tsement*, 19 [2] 32 (1953).—A collection of papers by members of Moscow and Leningrad universities give the latest accomplishments in the technology of building materials in the U.S.S.R. B.Z.K.

OROLBAYEV, Abdy Orolbayevich; PUTALOV, A.K., red.; CHOTIYEV, S., tekhn.red.

[Budget and industrial development of Kirghizia] Biudzhet i promyshlennoe razvitie Kirgizii. Frunze, Kirgizskoe gos. izd-vo, 1960. 54 p. (MIRA 14:4)
(Kirghizistan--Budget) (Kirghizistan--Economic policy)

BROD, ~~IGNATIY OSIPOVICH~~ GROLOV, Ye F.

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19[illegible]

[illegible]D, IGNATIY [illegible]ICH

Poiski i razvedka neftyanykh i gazovykh mestorozhdeniy (Exploration and prospecting for oil and gas deposits; a textbook by) I. O. Brod i Ye. F. Frolov. 2. perer. i dop. izd.

Moskva, Gostoptekhizdat, 19[illegible]7.

6[illegible]4 p. illus., diagrs., maps, tables.

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Prinimali uchastiye: MARTYNOVA, R.S.; BORZOVA, Zh.I; OROLOV, Yu.N.,
laborant

Properties of welds in dissimilar heat-resistant small-thickness
materials. Trudy MVTU no.106:47-65 '62. (MIRA 16:6)
(Sheet steel—Welding)

TKACHEVA, R.E.; ORORODNEVA, V.I.; DUBOVSKAYA, M.V.; MARKOVA, Ye.I.; GRIGOR'YEV, N.P.; POPOVA, A.I.; ROZIN, M.S.; OPALEV, A.F. Prinimali uchastiye: ANTONOVA, L.N.; MALAYEV, A.A.; KIRILLOVA, L.D.; SOKOLOVSKAYA, Ye.Ya., red.izd-va; BYKHOVER, N.A., red.; GUROVA, O.A., tekhn. red.

[Concise handbook on the mineral resources of capitalist countries; Asia] Kratkii spravochnik po mineral'nym resursam kapitalisticheskikh stran; Aziia. Pod red. N.A.Bykhovera, M.V.Dubovskoi i A.F.Opaleva. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1961. 124 p. (MIRA 15:2)
(Asia—Mines and mineral resources)

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Study on the kinds of quince trees cultivated in the Danube Delta. Hidrologia 4:401-427 '63.

1. Membru corespondent al Academiei R.P.R. (for Bordeianu).

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ROSCA, Dumitru, I.; OROS, I.

Studies on the penetration of phosphate with P^{32} in the body of leeches (Hirudo medicinalis). Studii biol Cluj 13 no.2:347-353 '62.

1. Universitatea "Babes-Bolyai" Cluj, Catedra de fiziologia animalelor.

ROSCA, Dumitru I.; RUSDEA, Delia; OROS, Ioan

Influence of partial-bilateral decortications on regulating the hypophysis-suprarenal system of the white rat subjected to cold. Studii biol Cluj 13 no.2:375-381 '62.

1. Universitatea "Babes-Bolyai" Cluj, Catedra de fisiologie animala, si Academia R.P.R., Filiala Cluj, Centrul de cercetari biologice.

PORA, Eugen A.; OROS, Ion; REJEP, Aurora

The role of the nervous system in the repartition of $P^{32}O_4H_2Na$ in the visceral organs and in the utilization of this substance by the muscles. Rev biol 5 no.3:193-206 '60. (EEAI 10:4)

1. Membre Correspondent de l'Academie de la R.P.R. (for Pora). 2. Chaire de Physiologie animale de l'Universite Babes-Bolyai et Section de Physiologie animale comparee du Centre de Recherches de Biologie de l'Academie de la R.P.R. - Cluj.

(NERVOUS SYSTEM)
(SODIUM PHOSPHATES)
(VISCERA)
(MUSCLES)
(PHOSPHORUS)
(RADIOISOTOPES)

PORA, Eugen A., prof.; OROS, Ion; RUSDEA, Delia; WITTENBERGER, Carol; STOICOVICI Florica

Incorporation and elimination of P^{32} in some organisms of the Black Sea. Studii biol Cluj 12 no.2:293-326 '61.

1. Academia R.P.R., Filiala Cluj, Centrul de cercetari biologice, Sectia de fiziologie animala comparata, Universitatea "Babes- Bolyai," Cluj, Catedra de fiziologia animalelor, si Statiunea biologica marina "Ion Borcea," Agigea, Constanta. 2. Membru corespondent al Academiei R.P.R. si membru al Comitetului de redactie, "Studi si cercetari de biologie" - Filiala Cluj - (for Pora).

WITTENBERGER, Carol; OROS, Ion

Studies on the physiology of the striated muscle in teleosts. V. Lateral muscles in some marine fishes. Studii biol Cluj 12 no.2:333-341 '61.

1. Academia R.P.R., Filiala Cluj, Centrul de cercetari biologice, Sectia de fiziologie animala comparata.

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1. Membru corespondent al Academiei R.P.R.(for Pora) 2.Catedra de fiziologia animalelor de la Universitatea Babes-Bolyai si Sectia de fiziologie animala comparata a Academiei R.P.R. din Cluj.
(NERVOUS SYSTEM) (SODIUM PHOSPHATES) (RADIOISOTOPES)
(VISCERA) (MUSCLES)

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(PHOSPHORUS) (METABOLISM) (PHOSPHORUS ISOTOPES)
(CORTISONE)

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1. Division Chief, Central Statistical Office, Budapest.

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1. Division Chief, Central Statistical Office, Budapest.

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OCHRANA PRIRODY

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OROS. J.

OROS. J. Notes on the Draft of the High Tatra Town People's Committee concerning the organization of the Tatra National Park. p. 309.

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AGRICULTURE
Czechoslovakia

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OROS J

OROS, J

Do we wish to preserve nature in the Hight Tatra? A discussion of the article "The Present and Future of the Hight Tatra." p. 123

P. 123. (Ochrana Prirody. Vol. 12, no. 4 May 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2, February 1958

OROS, I.

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1. Direktor Tatranskogo natsional'nogo parka, Chekhoslovakiya.
(Tatra Mountains--National parks and reserves)